

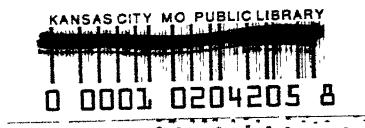
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The
FLOODS
of
JOHNSTOWN

Compiled and Written by the
FEDERAL WRITERS' PROJECT
Works Progress Administration
Commonwealth of Pennsylvania

Sponsored by the
MAYOR AND CITY COUNCIL
of Johnstown, Pa.

Mayor
DANIEL J. SHIELDS
Councilmen
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Published by the
**MAYOR'S COMMITTEE
OF
THE CITY OF JOHNSTOWN, PA.**

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FOREWORD

"The Floods of Johnstown" fills a gap in the history of Johnstown. Too little is known of the past floods which visited our city. Nor should we overlook the significant fact that had many of these minor floods (regarded as overflows or high water) occurred in recent years, there is little doubt that Johnstown would now be a ghost city. For the channels of the rivers were wider and deeper in other years. Today, however, Johnstown looks forward with confidence to a future in which the tragedies of the rivers will be only a memory, and real, effective flood control will be an accomplished fact.

This pamphlet is not merely a brief recital of the floods of Johnstown. It is an eloquent and enduring plea for flood control wherever such control is needed. It is the story of a citizenry who showed magnificent and tremendous courage in the face of adversity. "The Floods of Johnstown" is a saga of simple faith and great courage; it is the story of Johnstown.

DANIEL J. SHIELDS
Mayor of Johnstown

YARROW CLOUD
WTO RAGHAD
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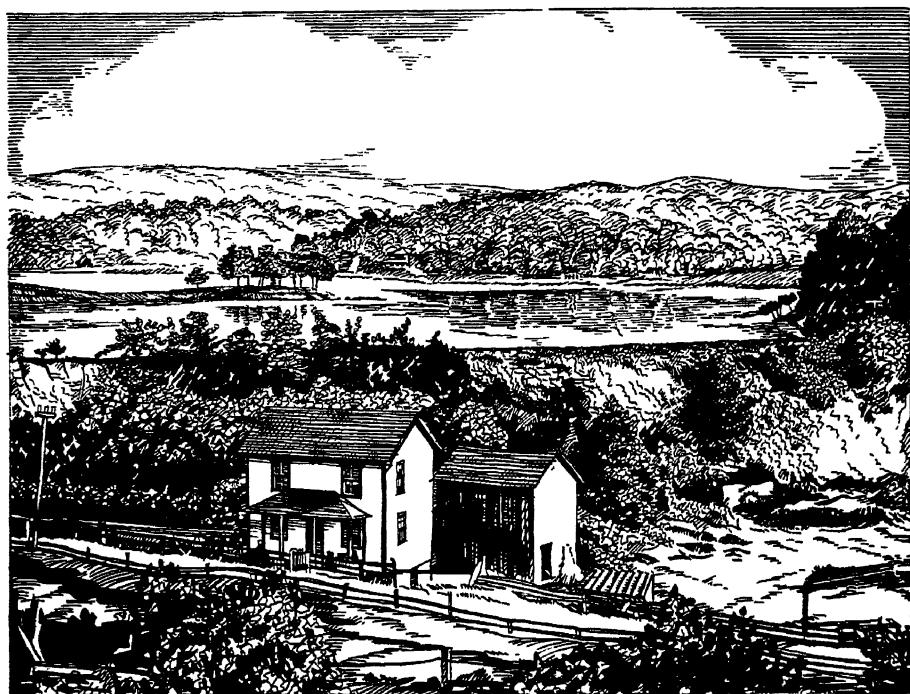
HENRY G. ALSBERG, Director Federal Writers' Project

NOTE

The Floods of Johnstown is the sixteenth in a series of books and pamphlets that have been published by the Federal Writers' Project in Pennsylvania.

This pamphlet was written by Peter J. Toner of the Cambria County Unit under the editorial direction of Charles V. Waters. The art work is by Edward Giordano, and Herbert Palmer, staff artists. The map was drawn by Horace Allen, under the direction of William J. Hagerty.

PAUL COMLY FRENCH
State Director



Drawn from a photo by Tribune Publishing Co.

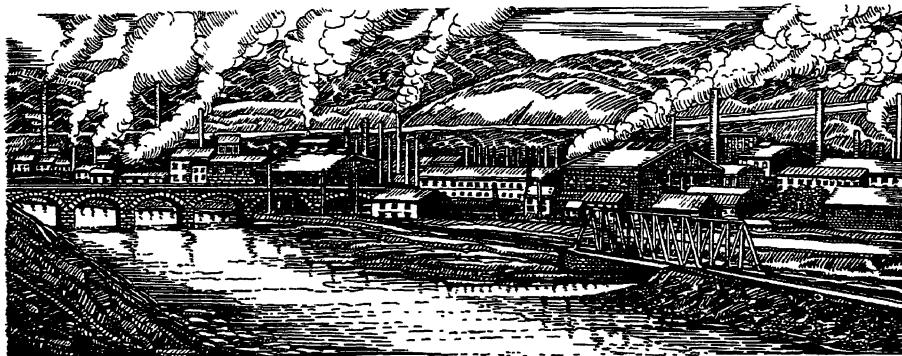
THE IMMINENT DANGER
South Fork Dam before the break of 1889.

The Floods of Johnstown

FROM its earliest days the city of Johnstown was washed periodically by floods. Perhaps Mother Nature felt that these ablutions would contribute to the cleanliness of a city that was to become prosperously dirty; or perhaps a special providence was preparing the progeny of the pioneers for the catastrophe that was to shock the world on that dreadful day of May 31, 1889, when 2,200 persons perished in the worst peace-time disaster of the Nation's history; and for that fatal Tuesday of March 17, 1936, when the courageous citizens suffered flood losses in excess of forty millions of dollars.

The Stonycreek River, which rises near Berlin, in Somerset County, drains the Quemahoning Valley south of Johnstown. Beginning near Carrolltown, the Little Conemaugh drains the Conemaugh Valley on the western slope of the mountains. The two rivers unite at the Point in Johnstown to form the Conemaugh River, the waters of which eventually empty into the Gulf of Mexico.

Certainly Joseph (Schantz) Johns, when in 1800 he sketched the plans for a village called Conemaugh—now the city of Johnstown—could not have foreseen that the gentle Little Conemaugh and the placid Stonycreek would become raging torrents of destruction and death. The area at the confluence of the two rivers was especially inviting to farmers, and the streams themselves traveled circuitous routes through the beautifully wooded foothills of the Alleghenies, forming narrow, fertile valleys. There was plenty of water power for the grist and sawmills of the pioneers; indeed, many of the early inhabitants built their homes close to the low, sloping banks of the rivers, which not only provided fish for the table and water for the wash, but served as a better means of trans-



Drawn from an old photograph
FIERY FURNACES OF JOHNSTOWN
Cambria Iron Works before flood of 1889.

portation than the mountain trails. Nearly every river resident owned a canoe or rowboat.

The village basked in the peace and contentment of orderly growth until the spring of 1808, when occurred the first in a series of floods to inundate the area during succeeding years. So rapidly did both rivers rise that inhabitants fled in terror to the hills. When the flood waters had receded the people returned to their homes and, with a courage that frequently was to be emulated in later years, began the task of repairing the damage. There were no casualties, and property damage was negligible; but considerable loss was sustained in poultry and livestock.

The first flood became an unfailing and ever-increasing topic of conversation among the settlers. Births, marriages, and deaths were reckoned by their proximity to the time of the flood. Tales were told and retold, losses were magnified, and experiences were exaggerated with all the abandon of a patient reveling in the joyous discomfort of a first-operation convalescence.

Three years later the Stonycreek Dam gave way; the resulting flood washed away the Cambria Forge, constructed as early as 1809 at the head of Vine Street by John Halliday. (The Stonycreek Dam had been built to supply water for the use of the forge.) With the destruction of both dam and forge, Halliday reasoned that the Little Conemaugh would be the less troublesome of the two streams; accordingly he set up a forge in Iron Street on the Little Conemaugh.

A sudden rise in both rivers in 1816 sent the inhabitants of Conemaugh to the hills; and in the fall of 1820, on the eve of attaining its majority, Johnstown had what has been jocularly described as

a "pumpkin flood." The Stonycreek River, unable to retain the outpouring of its watershed, inundated the whole town. On Vine Street, its level raised since then, the turbulent waters reached to the fence tops. Cattle, barns, fences, houses, and pumpkins—mostly pumpkins, of which there was an abundance—were swept as far as the Ohio and Mississippi Valleys. Presumably the pumpkins provided pie and sundry succulent dishes for many a family living on the shores of Ol' Man River.

The farm lands which largely composed the northwest section (later called Cambria City and now the Fifteenth and Sixteenth Wards) were inundated, and all crops and livestock were destroyed—with the exception of a cow that was rescued at a point near Coopersdale.

Shortly after the completion in 1832 of the Pennsylvania Canal—a system of water ways that included a canal, with locks and dams, from Johnstown to Pittsburgh—there arose the problem of providing water to feed the canal during the dry season. The State answered it on February 18, 1836, by appropriating \$30,000 for the construction of the South Fork Reservoir—an ambitious enterprise for that day—on a site 16 miles northeast of Johnstown. This artificial lake, the largest of its kind in the country and built at a cost of several hundred thousand dollars, covered approximately 32 acres. Three miles in length, it ranged from $\frac{1}{4}$ to 1 mile in width, and had a depth of 72 feet at the breast. Construction was carried on slowly and when the State had exhausted its appropriation, additional money



Drawn from an old photograph.

THE BLACKENED HEARTHS
Cambria Iron Works after flood of 1889.

for the project was not readily forthcoming. As a result, 10 years elapsed before anyone could literally say that "much water had gone over the dam."

In 1847, however, the residents of Johnstown became keenly aware of the irony that could be read into the figure of speech, for the newly finished reservoir broke, causing damage to the canal and basin. The basin, beginning at Washington and Clinton Streets, and extending along Railroad Street, was semi-circular in shape. It was about 600 yards in length, and at one point 200 yards in width. Similar to the one in Pittsburgh, the basin was used to moor boats for loading and unloading. As a result of the break in the dam, the north bank of the canal just below the Baltimore & Ohio Railroad station was washed out for a distance of 100 feet. A number of boats broke from their moorings and were carried through Washington Street to Portage Street, a thoroughfare no longer existent, which ran parallel to Center Street.

The water reached a depth of from 4 to 6 feet on the "Island," where the Gautier Works now stands, opposite Hudson Street, and where the Johnstown Foundry, owned and operated by Pringle, Rose & Edson, iron and brass founders, machinists and car-builders, was then situated.

When both rivers overflowed in 1859, covering the mill and the section of town below Walnut Street, there was barely a ripple of

The Aftermath of Fire and Flood. St. John Gaulbert Church after flood of 1889.

Drawn from a photo by Rothengatter and Dillon.



excitement. The people, now accustomed to the vagaries of the streams, accepted their tantrums with stoic calm. The gradual overflow afforded a holiday for the school children, while parents impatiently waited for the waters to subside in order to begin the cheerless task of cleaning their cellars and first-floor rooms.

With its purchase of the canal and the Portage Railroad in 1857, the Pennsylvania Railroad Company had no further need for the South Fork Reservoir. The dam deteriorated slowly, and the machinery used to operate the waste-gates remained idle. Continuous seepage partly disintegrated the breastwork, and the water which escaped thereby reduced considerably the quantity contained in the dam. Two small breaks occurred in July 1862, flooding the valley below. Little actual damage was done, as the breaks permitted only a comparatively slight discharge from a reservoir nearly half empty. The lower sections of Johnstown were flooded extensively, but the Little Conemaugh carried off most of the excess water that poured into its channel.

Ice gorges contributed to the spring floods. The area comprising the Eleventh Ward—the section lying 1 mile northeast of the central part of the city known as Woodvale—was particularly affected when the ice gorges dislodged and thawed. It was not uncommon to see the farmers there plowing and planting late in the season.

On March 13, 1868, largely as the result of a sudden thaw, both rivers were in flood. The Kernville Bridge was swept from its moorings, two houses on Goose Island were destroyed, and the lower reaches of the town were partly submerged. The damage, as in similar overflows, was mostly to agricultural lands, where fields had to be retilled and sowed. No measures were taken to prevent these periodic submersions of the lower areas. Whenever a flood seemed imminent, however, livestock was led to safer pasture.

For 17 years—from 1862 to 1879—the South Fork Reservoir lay neglected and practically forgotten. A group of wealthy Pittsburghers incorporated a company, the South Fork Fishing and Hunting Club of Pittsburgh, with the intention of making an exclusive summer resort for its members. The articles of incorporation stipulated that the club had for its object the “protection and propagation of game and game fish, and the enforcement of all laws of this State against the unlawful killing or wounding of the same.” Thousands of dollars were spent for the protection of fish, but when an examination of the dam a few years later revealed some bad leaks and a too shallow

sluiceway, only a small sum could be had for repairs that would insure protection for the thousands of people in the valleys below.

It required two years to repair the dam. The height was increased and the basin extended in an irregular oval shape 3 miles in length and a mile and a half in width. After the dam was rebuilt the basin was called Lake Conemaugh. It normally contained sufficient water to fill a canal nearly 600 miles long, 30 feet wide, and 5 feet deep. A group of experts inspected the dam—largely to anticipate any apprehensions that might arise regarding its safety—and their report read like one prepared to please a contractor's combine. Actually, the central portion of the breast was filled with stumps, sand, loam, leaves and straw! The committee inspected the surface of the breast, and, seeing no outward signs of weakness, naively concluded that the superficial appearance was a manifestation of inward strength.

The reconstruction of the dam was not remotely consonant with the elemental principles of engineering. The breast of the dam should



Drawn from an old photograph.
THE CITY OF WATER
Johnstown from Green Hill after flood of 1889.



Drawn from an old photograph.

THE UNAPPROACHABLE SPAN
Woodvale Bridge after flood of 1889.

have been higher in the middle than at the ends so that the overflow would have been diverted over the ends, thus reducing the pressure against the middle. The South Fork Dam, however, was nearly 2 feet lower in the middle than at the ends.

The normal height of the lake was about 14 feet below the breast of the dam. Not infrequently—and more noticeably so after a rainfall—the water would rise to a level within eight feet of the top of the breast. As a result of an unusually heavy rainfall, all the streets in Johnstown below Jackson Street were covered with water on June 7, 1887. The water reached a depth of 18 inches in front of Quinn's store on Clinton Street. In the section around the Point, the people were compelled to move their furniture to the upper floors as the water ranged in depth from six to eight feet.

The loss was estimated at \$75,000 to \$100,000, including two bridges that were carried away. During the flood, rumors had spread that the South Fork Dam was in a leaky and weakened condition. A momentary alarm was felt, but there was no investigation of conditions at the lake. However, surveys were made for the purpose of locating future buildings where they would be safe from floods.

At 10 p. m. on the Monday of August 20, 1888, a steady and monotonous rain began to fall. There was a brief lull after 24 hours,

followed by a torrential downpour that began at midnight and continued until daybreak. The waters of the Stonycreek River rose seven feet from 8:30 p. m. to 11 p. m., August 21; but the peak reached on the morning of August 22 was three and a half feet lower than the flood of the preceding year.

Although the financial loss was generally small, the inconvenience and alarm caused by the flood was widespread. The section of the city embracing the Point was covered with water ranging from one to four feet in depth. All cellars in that district were flooded, and some homes had a foot or two of water on their first floors. Most of the people living in the lower parts of the city were forced to leave their homes and seek shelter on the higher levels. A large quantity of driftwood piled up against the Point Bridge, thus retarding the flow of the Conemaugh River.

In an editorial commenting upon the cause of the flood—which everyone agreed was due to the narrowness of the channels—the Johnstown **Tribune** laconically observed, “A two-inch stream cannot be forced thru a one-inch pipe.”

The growth of Johnstown was measured by the growth of the steel industry. The rich bituminous coal deposits lying in the surrounding hills provided a cheap and almost inexhaustible source of fuel for the mills. The city expanded rapidly. A steady influx of immigrants increased the population approximately 30-fold between 1840 and 1890. More than 7,000 men were on the payrolls of the Cambria Iron Company in May 1889; the future appeared cheerful to the 30,000 people of Johnstown until an unprecedented rainfall drenched the western slope of the Alleghenies during the last week of that month. The rain belt extended almost to central Pennsylvania. On Memorial Day, 1889, the veterans of 1861 had reverently paid tribute to their dead comrades—mercifully unaware that before another day had passed many who had lamented the dead would themselves be lamented.

Friday morning, May 31, dawned dark and dreary—a dismal setting for the disaster that was to come. At 8:30 a. m. both rivers overflowed their banks. It was not long before the area below Market Street was covered with water, and within a few hours the greater part of the city was inundated, the water ranging from two to ten feet in depth. Mills and stores had closed early in the morning. Members of families were at home busily engaged in moving their furniture to upper floors. This was especially true of the residents of the lower areas, where the water ascended nearly to the first-floor

ceilings. Some families deserted their homes and moved to safer ground.

Before noon the Poplar Street Bridge and the Cambria City Bridge had been carried away. Swiftly it was noised about that the South Fork Dam would be unable to withstand the pressure against its breast. Scant attention was paid to such reports, as similar rumors had proved false in the past. The Johnstown **Tribune**, however, cocked a ready ear to a report received at the central telephone office at three in the afternoon that the dam was in danger of breaking.

"It is idle to speculate," the **Tribune** observed, "what would be the result if this tremendous body of water—three miles long, a mile wide in places, and 60 (90) feet deep at the breast at its normal state—should be thrown into the already submerged valley of the Conemaugh."

The dam broke at about 3:10 in the afternoon. Those who saw it go said it seemed at first as though the dam itself were moving rapidly down the valley. Due to the disruption of telegraph and telephone service the people could be given no warning after the break had occurred. But even had Johnstown received the alarm, nine-tenths of its inhabitants could not have escaped. The already flooded streets precluded the possibility of mass flight to the hills.

The tales told of the Daniel Peyton, John Parkes, and others, who on "foam-flecked steeds" rode through town warning the people to flee to safety are utterly fantastic. Even Pegasus, equipped with water-wings, would have had difficulty in negotiating the canal-like streets of Johnstown. The myths owe their origins to McLaren's story of young John Baker who, mounted on horseback, witnessed the break while some distance away from the dam. Riding furiously toward South Fork, he warned several households along the route, as well as a few families in South Fork, of the coming avalanche.

There was loosed 4,500,000,000 gallons of water.* Rushing down the mountain gorge, the black wall swept away nearly everything in its path. Trees, rocks, houses, lumber, and locomotives were engulfed and carried along like straw in a brook. Nothing could withstand the onslaught; the conglomerate mass of wreckage moved relentlessly towards Johnstown.

Witnesses along the path of death afterward declared that the movement of the water was frequently retarded at places where the

* There have been many conflicting figures regarding the volume of water discharged from the dam. They vary from 2,000,000,000 to nearly 8,000,000,000 gallons. The figures quoted are from reliable records furnished by the Johnstown Water Company.

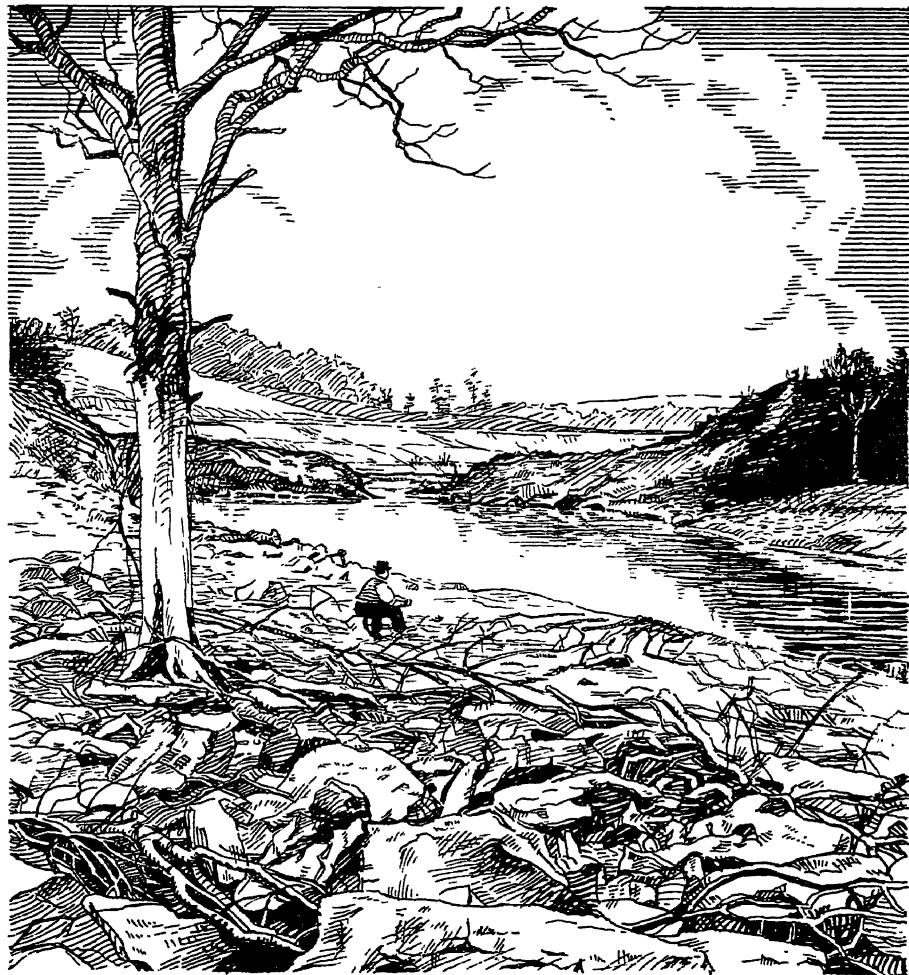
valley narrowed. The wreckage and debris would form a temporary dam, but these checks were only momentary, and the flood swept on. Sections of houses, logs, trees, and other objects were tossed continually above the surface by the grinding movement of the rolling mass. In front of the gigantic wave rushed a powerful wind that pushed houses from their foundations before the water reached them. This invisible buffer was caused by the water and debris whipping the still air into motion and shoving it relentlessly onward. Only when the water reached Woodvale, where the valley widened, did the wreckage mix with the water. The flood swept through Woodvale, about one mile northeast of the center of the city, at approximately 24 miles an hour. It struck the central part of Johnstown with terrific force.

After the largest wave had passed through Conemaugh Borough it was deflected on Clinton Street, sweeping down Main and Locust Streets. This wave, the central one of three, pounded futilely at the rear wall of the Methodist Church. Passing through Central Park, it encircled Vine Street, destroying on the way the public buildings on Market Street. Nearly 200 persons found refuge in the Union Street schoolhouse, which stood against the flood. The three titanic waves united at the Point.

The hill on the west side of the Stonycreek River was an insurmountable barrier. It caused the water to surge towards the Stone Bridge, which withstood the shock without a visible tremor. The low arches of the bridge—which still constitute a distinct hazard to the city during high water—quickly piled up the debris. This obstacle impeded the flood, which receded as far as the Eighth Ward (then known as Grubtown, about one mile south of the city) before it seemed to gain fresh impetus. Retracing its path of destruction, the wave of death swept back as though to destroy completely and forever what little remained of Johnstown.

While many deaths were directly attributed to the immovability of the Stone Bridge, no one will deny that it was also the cause of saving many lives. Had it been swept from its supports when the first wave struck it, Cambria City and Morrellville—not excluding the Cambria Iron Works—would have been utterly destroyed. The span and the debris jammed against it enabled thousands of persons to escape death in the deluge. And, as the flood backed up from the bridge, there was afforded opportunities for many rescues.

The first huge wave derailed several railroad cars containing crude petroleum, which saturated driftwood and houses. When the



Drawn from an old photograph.

THE BROKEN WALL
Breast of South Fork Dam after flood of 1889.

wreckage piled against the Stone Bridge an overturned stove set fire to one of the houses. Despite the water which raged around it, the whole mass of debris soon became a roaring, crackling conflagration, forming a flaming breast-work for a dam of destruction and death. Death by fire in the midst of a flood! To dislodge the blazing wreckage by dynamite was impossible, not because the bridge itself was indestructible, but because it was inaccessible for the placing of explosives. As the flames roared upward, the sickening



Drawn from a sketch appearing in
Harpers' Weekly, June 15, 1889.

THE FURY OF NATURE
A rescue at the signal tower below
Sang Hallow (1889).

scenes in the annals of American disasters. The few buildings that still occupied their original sites were damaged almost irreparably.

There were no thoroughfares. From Clinton Street to Jackson Street not a house was left standing, with the exception of a wing of the chapel of St. John's Convent. In that part of the chapel which contained the altar, the Sisters of Charity of Greensburg had knelt and recited their prayers till the fury of the flood had spent itself. Every nun survived to work untiringly to allay the sufferings of the afflicted.

While searchers clambered over debris, rafts were hastily constructed to carry the more venturesome across the well-nigh impassable streams to perform works of helpfulness—to clothe the naked, to feed the hungry, to give drink to the thirsty, to comfort the afflicted, to bury the dead.

In the days that followed appalling sights bore witness to the misery of the city's people. So ghastly had been the experiences of many survivors that they prayed for death as a surcease. Nearly

odor of burned human flesh assailed the nostrils of those who watched helplessly on the river banks. Within a few hours nearly 300 persons were burned to death. The town lay under water from 15 to 20 feet deep.

That night there was no moon, no stars. The pall of darkness elsewhere was made more apparent by the glare from the funeral pyre at the Stone Bridge. A scream, the crash of a building, the splash of cold rain, were the only sounds to break the silence.

Saturday morning dawned clear and bright. Streams still swollen separated different parts of the town. How many bodies lay strewn among animal carcasses and the wreckage could only be conjectured. Those watching on the hillsides beheld one of the most devastating

everyone who survived had lost some relative or close friend in the flood. One unidentified woman had been killed while giving birth to a child.

The heroism displayed by those who had risked their lives to save others found its counterpart in the calm fortitude with which many met their deaths. One witness relates that he saw a large raft bearing an entire family singing "Nearer, My God, to Thee." While the hymn was yet half sung the raft crashed against a tree. All of its occupants perished.

A five-months-old-baby—who were its parents no one ever knew—was rescued uninjured at Pittsburgh Saturday morning, after floating the entire distance on the floor of a house. Stories of rescue, adventure, and escape were myriad, but it was no time for story telling. Bodies had to be recovered, identified if possible, and buried. It was necessary to guard against pestilence. A city had to be rebuilt.

To recover the bodies was not easy. So woven into the wreckage were the corpses that many weeks elapsed before an approximately accurate death toll could be made. To learn definitely the extent of the casualties was impossible, although it was estimated that approximately 2,200 persons had perished.

James J. Flannery, Pittsburgh undertaker, organized a relief corps of undertakers. Embalming supplies were hurried to Johnstown.



Drawn from an old photograph.
THE REFUGEES
An emergency barrack during flood of 1936.

It was not until Monday evening, however, that the full corps of 55 undertakers began their work of washing, embalming, and preparing the bodies for burial. To add to the danger of disease after disaster was the large number of animal carcasses.

A room in Alma Hall was set aside for the reception of articles that might lead to the identification of the dead and the missing. Scenes of indescribable grief took place in this room. A glimpse at some of the entries in the records:

Three rings on female, weight 185 lbs., 5 ft. 8 in.
\$25 found in black silk stocking with foot of female, high button shoe.
\$7.04 found on male, light hair, weight about 150 lbs.
Ring with initials "F. M.—L. H."—woman about 55, hair partly gray,
dress black.
Foot of child burned at the bridge, slightly charred.
Girl, about 6 month old, dark hair, white dress, brown bib.
Child, 6 years old, no means of identification.

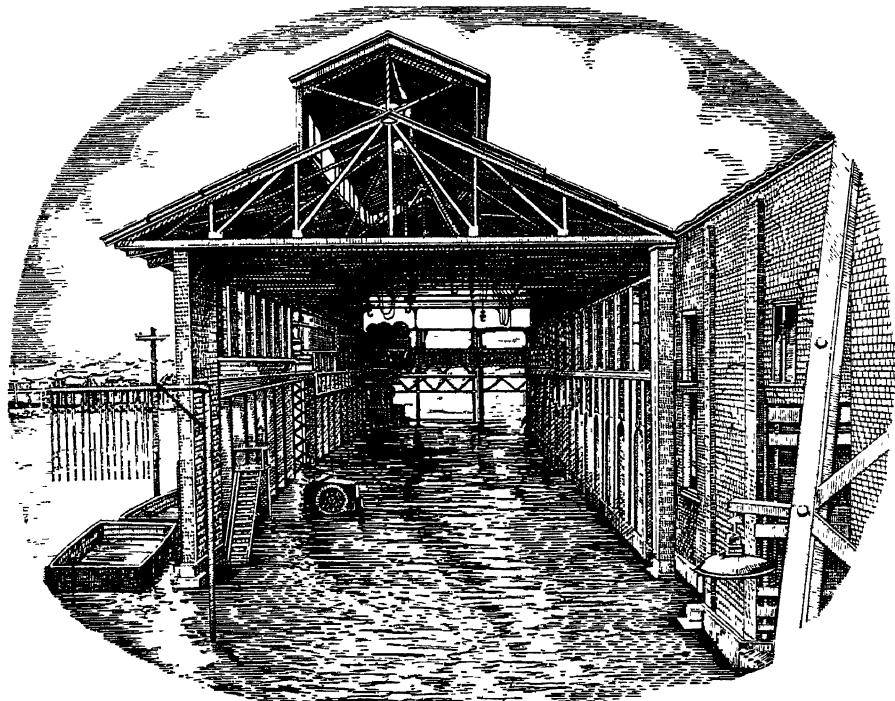
Upon such meager information thousands of survivors visited the morgues searching for missing relatives and friends. One of every three victims buried was unidentified. Frequently the dead were labeled for the living.

Many of the cemeteries were inaccessible because of the debris-littered streets and the lack of bridges. A plot of land back of Prospect, a hill suburb one-half mile north of the central part of the city, was therefore used for shallow graves. The bodies temporarily interred here were removed months later to Grandview Cemetery, where 777 unidentified dead now rest high in the hills.

Alarmed by the drunkenness, disorder, and depredations so prevalent on Saturday afternoon, a citizens' committee was organized to bring about order. There were many cases of robbery, mutilation, and pillage. Telegraph communication with the outside world was broken, and rumor took the place of fact in many newspapers.

When the committee found itself powerless to subdue the lawless element, a public meeting was held on Wednesday. J. B. Scott, of Pittsburgh, was unanimously chosen director, with the virtual powers of a dictator. Some semblance of order was restored during his brief administration, which lasted until the coming of the militia.

On Sunday night Sheriff Burgess asked the governor for troops. The following day the Fourteenth Regiment, Pennsylvania National Guard, under command of Col. E. C. Perchment, started for Johnstown. It was not until June 9, as a result of a conference between Governor James A. Beaver, Adj. Gen. D. H. Hastings,



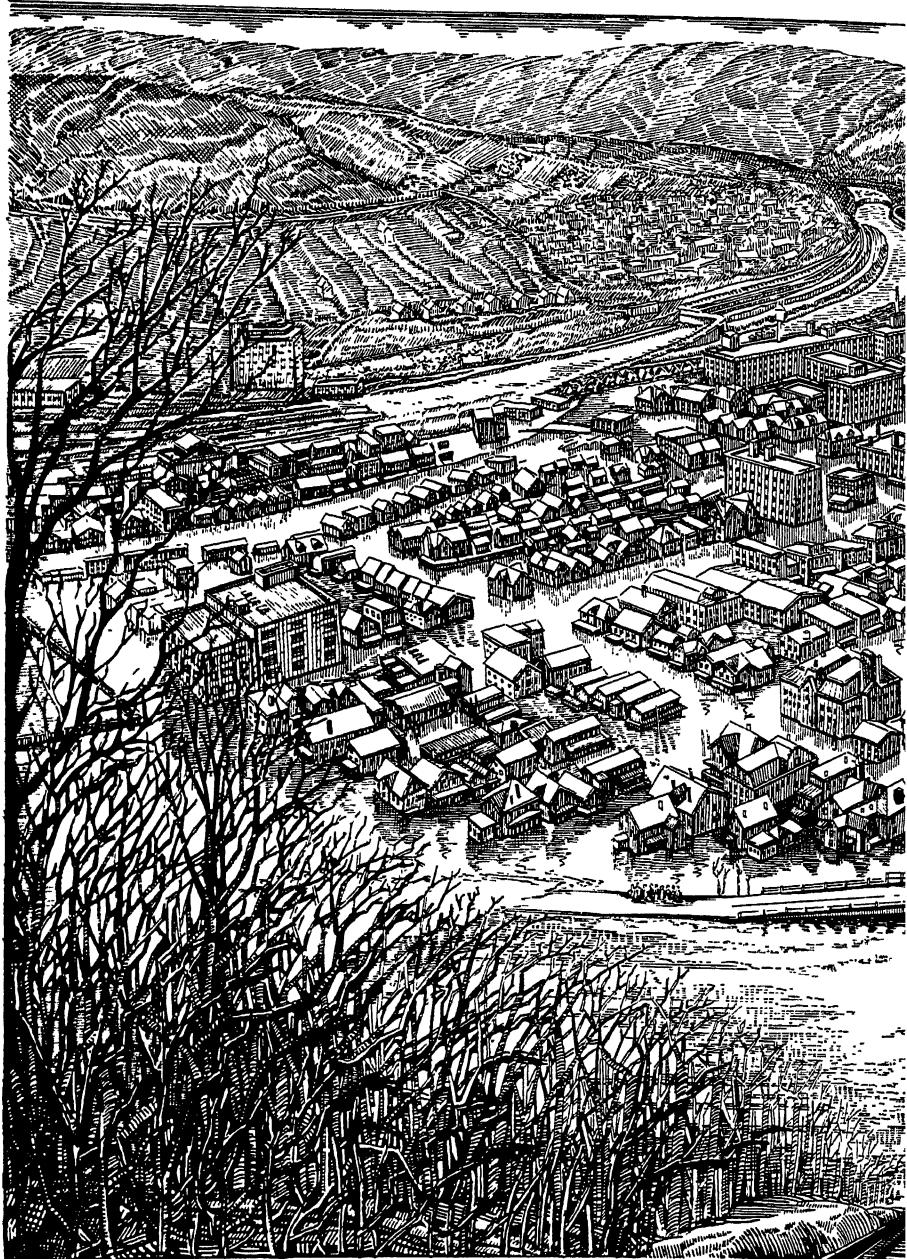
Drawn from a photo by Tribune Publishing Co.

THE RISING WATERS
Soaking pit along the Conemaugh River in 1937.

and Mr. Scott and his staff, that the State took charge. The town was virtually, if not officially, placed under martial law, with General Hastings in command. The Fourteenth continued on duty until July 13, with one company remaining through the summer. The largest number of troops in Johnstown at one time was 550.

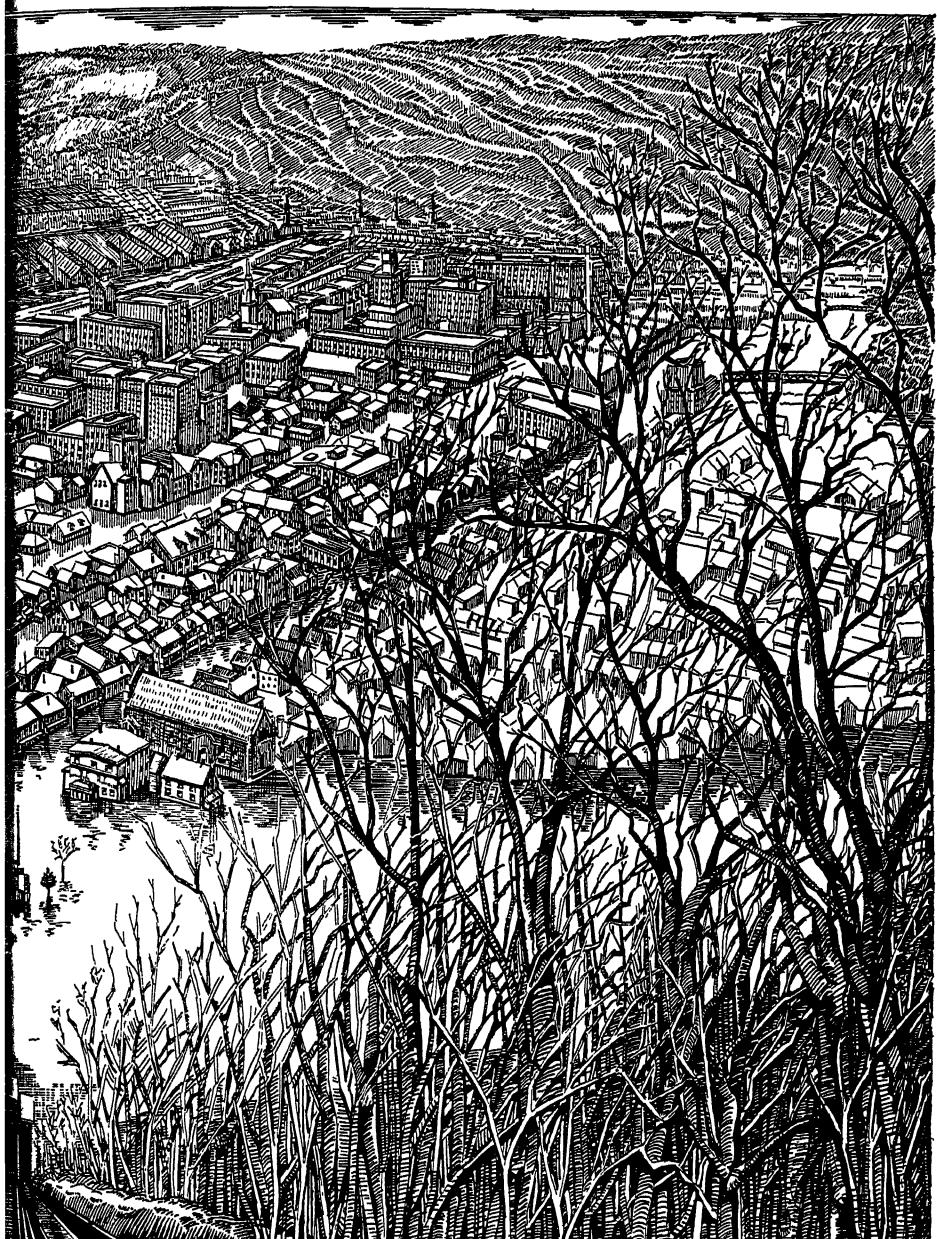
More than 6,000 laborers, under the direction of William Flinn of Pittsburgh, were engaged to clear the wreckage. Most of this force was withdrawn on June 12, the worst part of the job having been completed.

Hunger became a factor on Saturday, the day after the flood. A few grocers whose places of business had escaped at first demanded extortionate prices. They were quickly made to realize that profiteering constituted what might be considered a criminal act. The first carload of supplies was sent from Somerset, arriving in Johnstown early Sunday morning. Pittsburgh, Philadelphia, and Altoona soon followed suit, and it was not long before the survivors were



AFTER

The city on the morning of March 18,



DELUGE

from the top of the Incline Plane.

Drawn from a photo by Russell H. Heffley.

assured that famine would not overtake them. At the various commissaries, during the first two weeks following the catastrophe, 30,000 persons were fed daily.

Five days after the flood Miss Clara Barton, President of the Red Cross Society, arrived in Johnstown. She and her assistants immediately began to give aid to the sick and injured, and later undertook the distribution of food and clothing to the survivors. From her headquarters on Walnut Street, Miss Barton directed the work of hospitalization and housing until she left the city late in the fall.

Sanitary conditions in the town were alarming, with sewers stopped up, streams polluted, and wreckage saturated with filth. As many as 50 cases of typhoid fever were reported in a single day, and illness of a malarial type became almost epidemic. Meanwhile the State Board of Health struggled to provide some measure of security. Disinfectants were used freely; nuisances were abated; sewers were opened; and the river channel was cleared to permit the escape of sewage. Normal sanitary facilities were not restored until October.

Relief money poured into the city from all parts of the world. From presidents and kings, to children with their pennies, the golden stream flowed in, giving life, courage, and hope. More than



Drawn from a photo by Hornick and Langer.

THE MIGHT OF THE TORRENT
Franklin Street Bridge.

\$3,000,000 was contributed to the sufferers of Johnstown. Governor Beaver appointed a commission to distribute the money according to the needs and losses of the survivors.

Soon the work of rehabilitation was begun. From its ruins a new and greater Johnstown arose, attesting the indomitable courage and will of the stricken people. The city grew and prospered—but it never could forget those who had perished.

Thanks to the generosity of the world, the city was rebuilt, but few measures were taken to avert another flood. With the South Fork Dam destroyed, the people foolishly reasoned that future floods were impossible.

Harper's Weekly, June 15, 1889, made this significant statement, which apparently went unheeded:

The story (Johnstown Flood of 1889) is as simple as it is sorrowful. It has been told in every awful and heroic detail, and is now familiar in every household. If experience did not prove the probability of the situation, it would be incredible that great communities could live quietly in the immediate presence of an inconceivable possible disaster which yet could be readily averted, and take no steps to secure the common safety. But familiarity with such possibility seems often to paralyze apprehension It is impossible that this event should not produce an effective determination that such disasters shall be rendered largely impossible hereafter Its causes are perfectly comprehended; they are entirely avoidable; and a disaster of the same kind anywhere in any degree, after this appalling warning, would be not only a calamity, but a disgrace.

The Little Conemaugh and Stonycreek Rivers overflowed again on February 17, 1891. Rising gradually in late afternoon, both rivers came over their banks about 10 o'clock at night. The Cambria Iron Company and the Johnson Company Switch Works (now Lorain Steel Company) in Moxham were compelled to cease operations. Approximately one-third of the plant of the Cambria Company was inundated. Street railway service was discontinued for several hours. Liverymen did a brisk business conveying the more timorous to the hills.

At 2 o'clock the next morning, when the swollen rivers had already trickled as far as Adair's Opera House (now the Cambria Theatre) on Main Street, the water began to recede. One house had been dislodged from its foundation and another had been damaged. Most of the basements and cellars in the downtown section were flooded.

As a result of this minor flood, steps were taken to curb the uprising of the rivers. It was generally agreed that the Conemaugh



Drawn from a photo by D. Fleisher.
FLOTSAM OF THE FLOOD
Wreckage at corner of Main and Clinton Streets.

was too narrow to allow an easy run-off in the event of heavy rains or sudden thaws. Accordingly, the banks of this stream just below the Point were widened to 260 feet. After this had been accomplished, most of the citizens slept more soundly when raindrops beat on their window panes and roof tops, secure in the belief that the new width of the river was sufficient to carry away the surplus water.

Then came the spring of 1894, when rains soaked the soil to the saturation point. The rivers became abnormally high during April and the early part of May. A sudden heavy storm broke on May 20, causing the rivers to rise six feet from 11:15 p. m. to 12:15 a. m. Woodvale was hit when the Conemaugh overflowed its banks. The lower areas were flooded—and again the Cambria Works was compelled to abandon operations in portions of the plant.

A washout on the Pennsylvania Railroad tracks derailed and damaged six freight cars, causing a loss of \$6,000. The old Penn Traffic Store estimated its losses at \$5,000 to \$10,000. Nearly all the downtown business houses below Main and Clinton Streets suffered damage, as most of these establishments used their basements for storage.

Two lives were lost. Thomas McFeeters, aged 13, of East Conemaugh, fell into the swollen Conemaugh River, and his body

was washed downstream. A 17-year-old girl by the name of Gates, who was standing on the bank of the river above Conemaugh, fell in and was drowned when her footing gave way.

On the last day of February, 1902, the people of Johnstown were again visited by a flood. Melting snow in the mountains and ice thawing in the streams caused both rivers to rise rapidly. It was not long before the Haynes Street suspension bridge was swept away and streets became canals.

The speed of the current at the peak of the flood was approximately 10 miles an hour. Horses traveling on Napoleon Street waded in water that reached their bellies. At Main and Bedford Streets the water attained a depth of one foot. Many persons had to be taken out of their homes in wagons and carriages. At that, residents of the First Ward were compelled to stand up on the seats of the carriages to keep from getting wet. All of the cellars and most of the first floors were submerged.

Over 6,000 men were thrown out of work when the Cambria (Bethlehem) Lower Mills were flooded. Most of the merchants suffered losses when their basement stocks were inundated. The total damage, never accurately appraised, was deemed considerable.

As if to atone for the havoc they had wrought, the flood waters piled thousands of tons of fine-grade sand on Iron Street. Alert contractors, grateful for the rivers' quixotic offering, hauled the sand away for use in Johnstown's never-ending task—rebuilding. But the home owners felt differently. Their first floors had to be scrubbed; and their cellars had to be cleaned out and sweetened with lime. It was not a pleasant week-end for them.



Drawn from a photo by L. McCready and James du Pont.

THE WORK OF SALVAGE
Associated Gas and Electric workmen on Main Street.

At the close of the first week in June, 1906, heavy rains fell on the Stonycreek watershed. At times the downpour seemed to approach cloudburst proportions. On the morning of June 7, from 5:30 to 6:30 o'clock, the water rose four feet. As usual, the low-lying Valley Pike in the Eighth Ward and parts of the First, Second, Fifth and Seventh Wards were under water. The residents here worked frantically to remove their belongings before the rivers reached them. Sewers backed up and flooded all the cellars in the lower areas.

At 10:45 a maximum point of 17 feet at the Franklin Street bridge was reached. With two exceptions, all the mills of Cambria Lower Works were compelled to shut down. Street car service was paralyzed, and the branch line of the Baltimore & Ohio Railroad was closed to traffic for a few days. At Island Park (Benscreek, about four miles southeast of Johnstown) the water reached a depth of eight feet in some of the buildings, drowning most of the animals in the menagerie. Approximately 100 park benches were swept downstream and demolished. Park officials estimated the damage at \$2,500.

Although the majority of the merchants removed their basement stocks, their total losses exceeded \$5,000. So recurrent had the floods become that the people accepted them with the same resignation as they did the change of seasons.

The year 1907 is painfully remembered in Johnstown, not because of the financial panic, but because of the big overflow. On March 14, as a result of heavy rains and melting snow, the city was inundated to a greater extent than at any other time except 1889. Despite the precautions taken by many of the people, the damage was extensive.

The entire downtown section was covered by water. In the low-lying Seventh Ward, the southeastern part of the city familiarly known as Hornerstown, the waters extended from Cherry to Pine and Cedar Streets. At the H. Y. Haws' livery stable on Vine Street (on the site now occupied by part of the First Lutheran Church) the attendants were compelled to swim the horses and a pony from the stable to Lincoln Street. So strong was the current that houses were moved from their foundations. Small buildings, fences, and steps were swept away and demolished. Debris and driftwood littered the streets when the water subsided. Hundreds of catfish and suckers lay strewn along the streets of the low-lying wards.

Health officials immediately gave their attention to the removal of these and other nuisances. Streets, yards, and cellars were hastily cleaned. Housewives, cleaning their cellars, uttered despairing cries as they estimated the loss in preserves and other stored foods. The sale of boots exceeded \$5,000 on the afternoon of March 14. The merchants, however, counted their losses in the thousands of dollars.

One fatality occurred when the water was at its maximum height. Homer Wressler, son of the pastor of the First United Brethren Church, was attempting to lasso some drifting logs when he became entangled in the rope and was pulled into the swift current.

Again there was talk of flood control, but nothing was done to bring it about. Academic discussions, however, were not without their uses. A hostess could always enliven an otherwise dull card party by naively asking her guests' views on flood control.

Meanwhile Johnstown was growing steadily. Because of the proximity and plentitude of the coal mines (the largest bituminous coal deposits in the world in a limited area are to be found in the vicinity of Johnstown) the steel mills were enlarged and improved. Employment increased. Other industries, encouraged by the successes of the Bethlehem and Lorain Steel Companies, sprang up and supplemented them. Johnstown became one of the largest industrial centers between Pittsburgh and Philadelphia, having in 1930 a metropolitan population of more than 105,000.

During 1935-36 Cambria County experienced the worst winter in many years. Snow lay on the ground nearly four months, and sub-zero weather prevailed for weeks. By early March the snow had disappeared from the streets of Johnstown, but in the highlands a heavy blanket covered the ground—not yet ready to thaw.

Exceptionally heavy rains and a rising temperature during March 15-16 completed what Nature had been doing all winter—soaking the soil to saturation. Every hillside was furrowed with rivulets racing to the rapidly rising rivers. The morning of March 17 found the rivers at flood stage. Rain fell steadily on the Conemaugh and Stonycreek watershed. The rivers began to rise at the rate of 18 inches an hour. Merchants labored furiously throughout the morning to place their stocks beyond the reach of the foot or two of water which the backing sewers poured into their cellars. The overflowing streams crept toward each other. Between Westmont and Prospect hills, which lie west and north of the city at the confluence of the streams, a new river was formed, swift and muddy.

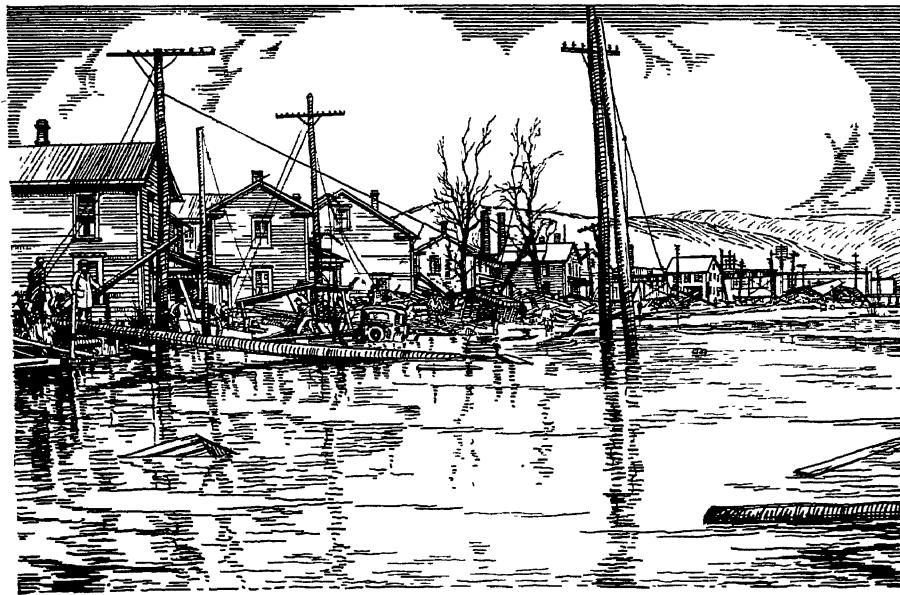
Tanks, poles, pianos, radios, tires, washing machines, refrigerators, and wreckage of all sorts darted in and out of alleyways and bobbed through the streets. Bridges cracked and crumbled under the pounding of the waters. So strong was the current that frame houses were moved from their foundations, some to be demolished; automobiles were overturned or swept from their parking places and crushed against buildings. Trolley cars were at a standstill. Thousands sought sanctuary in strange surroundings. And still the water rose!

The telephone lines were busy all afternoon as families and friends sent hasty messages of assurance and advice to one another. Before twilight most of the city was inundated. Residents moved to their second floors. Transportation was impossible. Telephonic communications were cut off. There was no light, no heat. The strange, rhythmic swish of the swirling waters banished thought of sleep. There were occasional screams, and the noises of crashing glass and breaking wood.

At 12:10 a. m., Wednesday, March 18, it was noted that there was no further rise in the waters. Ten minutes later George C. Buchanan, of the Johnstown Water Company, who kept a remarkably accurate log of the height of the flood, made a reading that indicated a perceptible fall. The recession, thereafter, was as rapid as the rise had been. The high water mark was 12.37 feet at Locust Street and Lee Place—approximately five feet lower than the high water mark of the flood of 1889. In the Fifteenth and Sixteenth Wards, that section below the Stone Bridge known as Cambria City, the flood level became approximately 18 inches higher than that of the '89 flood. This was because the Stone Bridge did not retard the full flow of water as it had when the debris and wreckage piled against it in the former flood.

In the muck and mud of the morning the property loss was estimated at \$50,000,000—a figure which proved to be exaggerated, as later official estimates placed it at \$40,821,692. There were eight deaths in the city and four in the county by drowning, and 12 deaths resulting from heart conditions, apoplexy, exposure, and suicide.

Streets, public buildings and houses were nauseating sights with their deposits of muck in the wake of the flood. Porches were gone; houses bulged crazily; doors and floors were warped; small frame garages had been carried away and demolished; a few houses had been moved from their foundations; trees were uprooted; concrete sidewalks were cracked and crumbled. Everywhere, everything



Drawn from a photo by Hornick and Langer.

A NAVIGABLE HIGHWAY

Looking north on A Street after flood of 1936.

was blanketed with thick alluvium. Men and women wept as they surveyed the wreckage of their homes, but the reunited families soon turned resolutely to the task of rehabilitation.

Early Wednesday afternoon a cold rain began to fall. To this discomfort was added an acute shortage of food, and the drinking water had to be boiled as a precaution against contagion.

At 2:45 o'clock a report was circulated that the Quemahoning Dam (about 18 miles south of Johnstown on the Stonycreek River), with a capacity twice that of the old South Fork Dam, had given way. Whistles wailed, sirens screamed, and the alarm was spread abroad: "To the hills! The dam has broken!"

In a short time the streets were deserted. From every point of vantage the city looked like a ghost town. A graphic (but fictitious) description of house-to-house destruction was broadcast by an amateur radio operator. The frightened crowds stood on the hillsides in the rain and watched for the deluge that would put an end to their city. The Quemahoning Dam held, however, the deluge did not come, and the people of Johnstown straggled down from the hillsides. One woman had died in the street from a heart attack

while attempting to reach the hills. Many died from illnesses induced by excitement and exposure.

Aware of the emotional distress of the people, Bethlehem Steel officials announced that the Cambria plant would "resume operations as soon as possible." The Lorain division of the Carnegie-Illinois Steel Corporation immediately began to recondition its Moxham plant. The spark of courage was rekindled. Many merchants, rapidly disposing of damaged goods, began to renovate their buildings in order to start anew. For a time the city was literally flooded with damaged-goods sales. Business men worked indefatigably to restore and reopen their establishments.

Immediate help came from various sources. The Red Cross was on the job early. Under the supervision of Robert E. Bondy, national director of disaster relief, who had arrived by airplane on March 18, commissaries, refugee centers, and first-aid stations were set up. Food, clothing, serums, and other supplies were shipped into the city from all parts of the country by train, truck, and plane.



Drawn from a photo by Hornick and Langer.

HAVOC AND WRECKAGE
View of Franklin Street Bridge from Stonycreek Street and School Place.

According to Red Cross estimates, 9,000 were homeless. Approximately 60,000 persons were fed the first few days by the Red Cross commissaries with the aid of local organizations. A rehabilitation program was instituted, under the direction of the Red Cross, at an expenditure of more than \$1,250,000, part of the huge sum a sympathetic nation gave for the relief of the flood victims.

Mayor Shields issued a proclamation establishing a 9 o'clock curfew. People were not permitted to assemble; loitering on the streets was forbidden; and sightseers were banned from the city. He ordered the State liquor stores closed and prohibited the sale of intoxicants. At his request Governor George H. Earle, who had arrived early Wednesday morning by plane, ordered the mobilization of the National Guard for service in the flood sector. This had the effect of placing the city under martial law, although the mayor remained in supreme command.

Under the command of Brig. Gen. Edward Martin 1,724 men and 114 officers comprising the entire 112th infantry, part of the 110th, a squadron of cavalry, and a hospital company were on duty in Johnstown. Maj. Lynn G. Adams arrived with a detachment of 81 State policemen and was closely followed by Capt. D. E. Miller, in charge of 80 State highway patrolmen. The State, county, and municipal police united with the military to preserve order and minimize the threat of looting and vandalism. Strict sanitation rules were enforced. A system of passes was instituted to keep out the idle and curious. With few exceptions, excellent order prevailed throughout the critical period.

The resources of the Works Progress Administration were placed at the disposal of Mayor Shields in the form of a flood emergency project. Nearly 7,000 men and 350 trucks were mobilized from the neighboring counties to clean the city. It was not pleasant work. Shoveling mud and debris from the streets, wading in the muck of dank cellars, some of which had not been cleaned in years, removing refuse, spoiled food, and putrid animal carcasses, the WPA workers gave a brave and memorable performance.

Under the guidance of city, county, and State officials, repairing and rebuilding was begun. Communications and other utilities soon were restored. All agencies gave their energies to the task of relief for the flood sufferers. Ways and means were provided to stimulate trade and to assist particularly the small business man. The city experienced its sharpest revival of business since the de-

pression. Extensive renovations, new and attractive fronts to buildings, expressed faith in the future of Johnstown.

WPA officials assured the city officials and the Johnstown rehabilitation committee, consisting of more than 100 of the community's ablest men, that all public property damaged and destroyed by the flood would be repaired or rebuilt at no cost to the city. On April 2, 1936, Secretary of War George H. Dern and Maj. Gen. Edward M. Markham, chief of Army engineers, after making a survey of the flood area, gave additional assurance that flood-control measures would be taken to prevent repetition of the disaster. But the hopes of Johnstown soared highest when, on August 13, President Franklin D. Roosevelt, at the invitation of Mayor Shields, came to see for himself the extent of the damage. Heading a delegation of Federal and State officials, the President, in a brief address at Roxbury Park, said:

"We want to keep you from facing those floods again. The Federal government, if I have anything to do with it, will co-operate with your State and community to prevent further floods."

Although the waters of both rivers were lower than at any time in Johnstown's history, the threat of flood was present in all its terrifying possibilities. The stream beds were filled with debris and mud deposits, offering dangerous obstructions to the rivers' flow in the event of heavy rains. Spurred on by this menace to the safety of the city and its people, Johnstown officials made frequent trips to Washington to urge flood-control legislation.

On the morning of April 26, 1937, the people of Johnstown awakened to find their apprehensions apparently about to be realized. Two days of incessant rain, plus the presence, despite dredging operations, of thick sand bars and large deposits of mud in the rivers, gave substance of their fears. The rain showed no signs of diminishing and both rivers rose rapidly. The narrow, shallow channels were inadequate to carry the run-off. Radio bulletins warned the people to move their belongings to upper stories before evacuating.

It was discovered that the rivers, from 2 o'clock to 3 that morning, had risen 1.85 feet. Merchants now were advised to remove their stocks. Sewer connections were plugged to prevent the backwaters flooding cellars. Plate glass windows were barricaded against destruction by floating objects. Street car service was discontinued, and vehicular traffic was largely suspended. The temporary Franklin Street Bridge, erected by the WPA, was swept away. The new Ferndale Bridge, in process of construction, was damaged.



Drawn from a photo by Hornick and Langer.

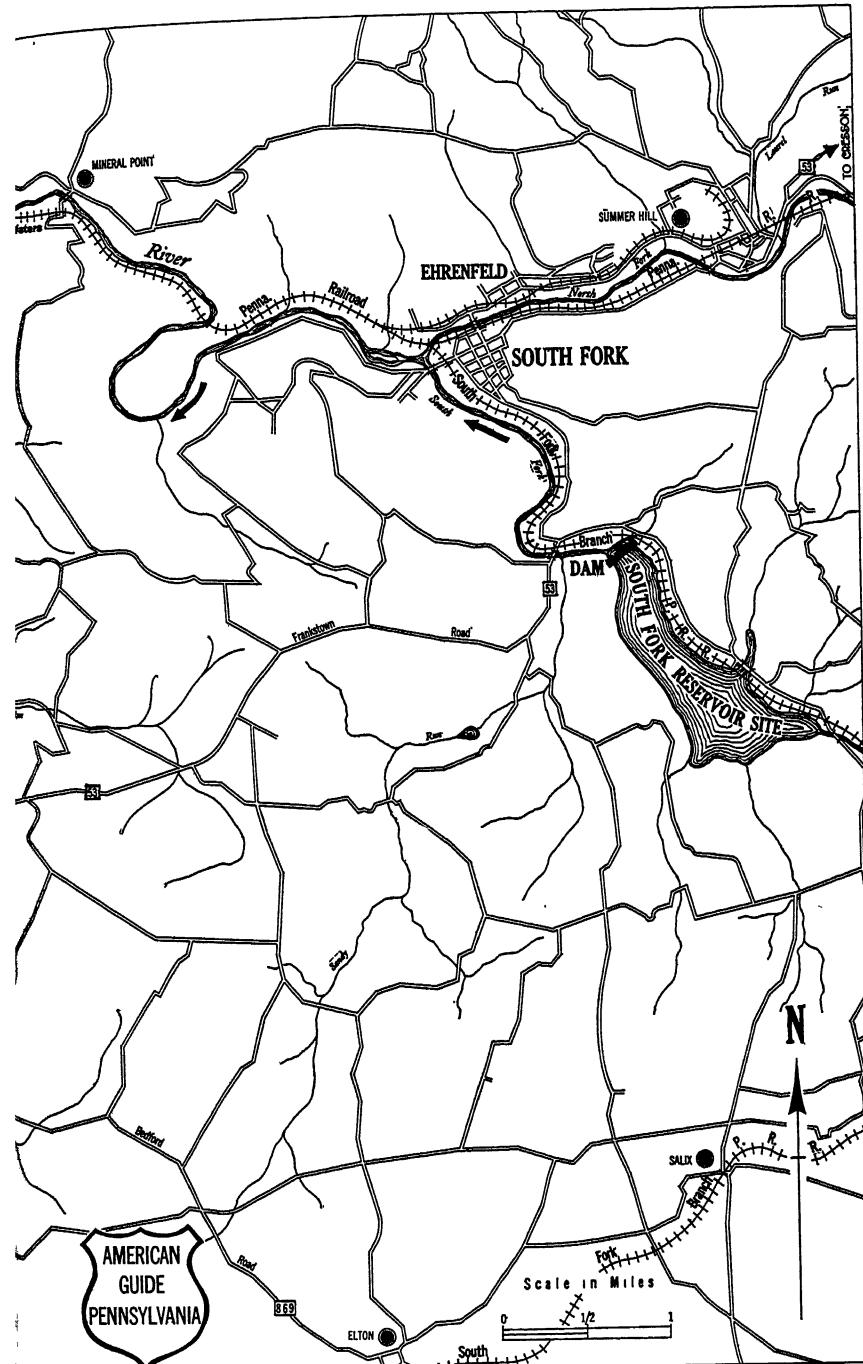
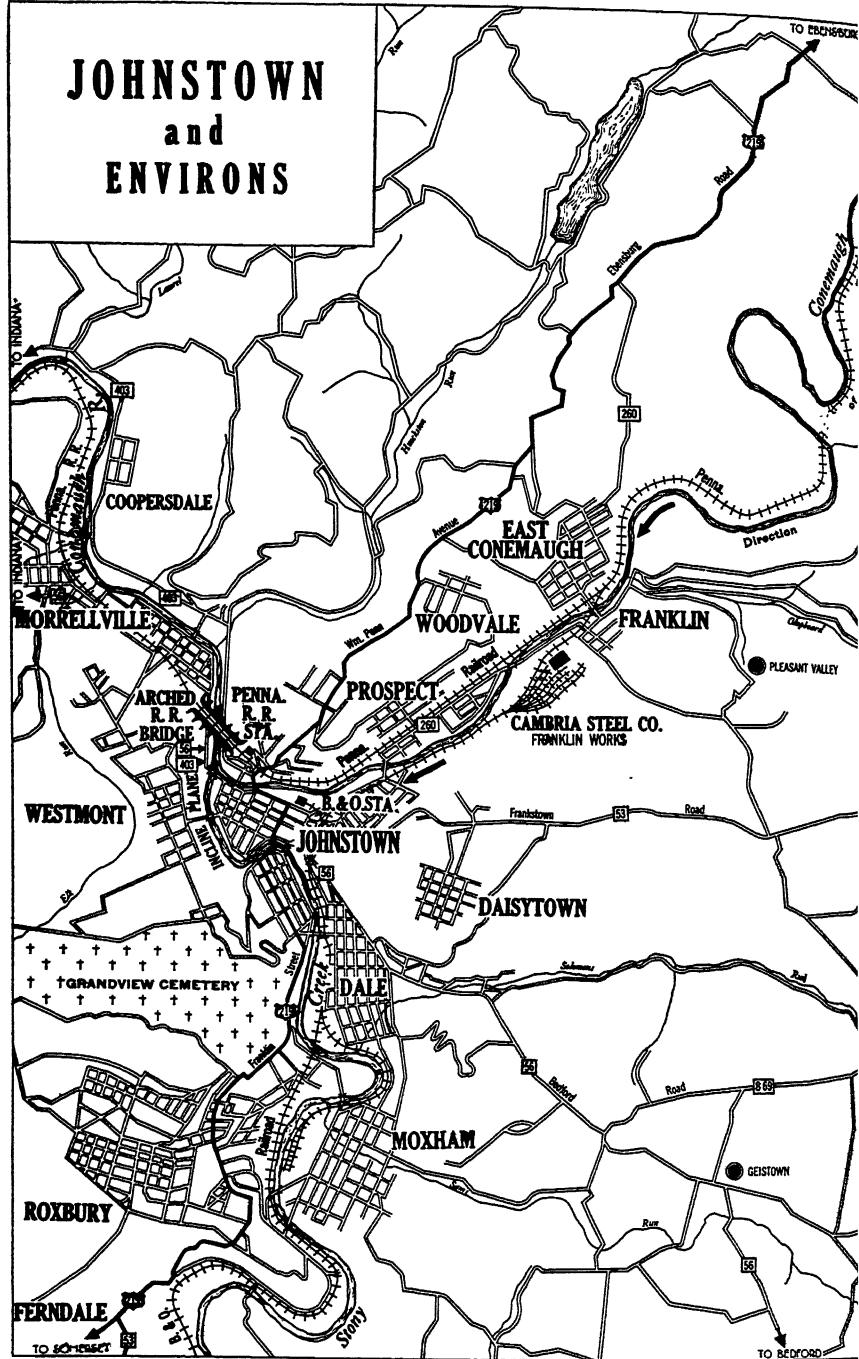
THE MORNING OF MUCK AND SILT
WPA workers removing mud on South Street.

Several mills of the Cambria plant of the Bethlehem Steel Corporation were closed. Officials of the Lorain Division of the Carnegie-Illinois Steel Company ordered the Moxham plant to discontinue operations. Most of the merchants, whose employees were engaged in removing stock to safer places, closed their doors to the public, and schools were closed also. Meanwhile the Red Cross set up a refugee center to care for the large number of persons who had evacuated their homes; relief agencies, as well as the people, were prepared for the worst.

It was not long before the streets in the low-lying areas were covered. When the Stonycreek River reached a peak of 17.53 feet, in midmorning, the water was nearly five feet deep in some sections of the city. At that time Robert C. Tross, weather forecaster, predicted: "Another half-inch of rain in the next five hours, and it will be just too bad."

Between 11 a. m. and noon the river fell three inches. Experts inspected the Quemahoning Dam and pronounced it safe. The discharge of water over the spillway was less than half the amount of the peak during the St. Patrick's day flood. The people breathed more freely, but two persons had already died of heart attacks.

JOHNSTOWN and ENVIRONS



It was estimated that WPA projects suffered damage in excess of \$7,000. With few exceptions, cellars were almost wholly flooded. City authorities ordered fire trucks to pump water out of the cellars. The muddy streets were reminiscent of those of the preceding spring.

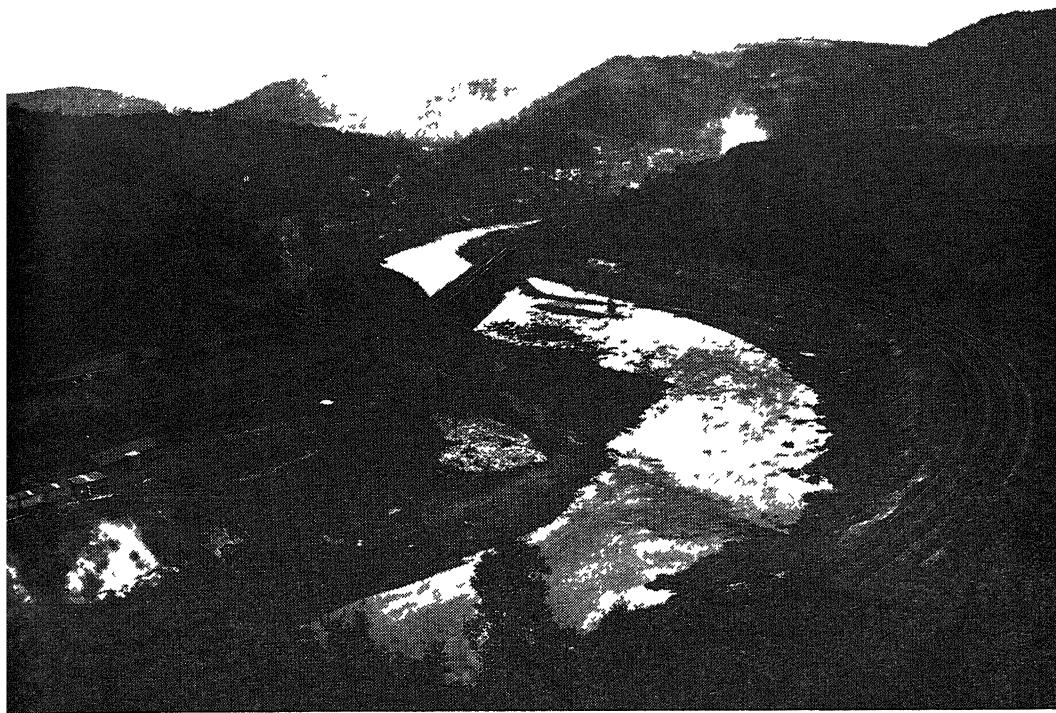
Citizens realized that so long as the rivers remained as they were, there would be a flood menace. Clamors for flood control became louder. Delegations to Washington, headed by Mayor Shields, demanded definite action.

On September 28, 1937, Maj. Gen. Markham officially approved flood control plans for the Johnstown area. A week before, \$1,000,000 had been allocated as the first grant in a \$7,600,000 flood control program for the city. The initial step comprehended a channel enlargement project, deepening of the river channels, construction of river walls and restoring the channels to their former widths—Little Conemaugh 125 feet, Stonycreek River 225 feet, and the Conemaugh River 260 feet.

Anticipating condemnation proceedings to obtain titles to the lands encroaching upon the rivers, the legislature passed an act authorizing the State to pay 50 percent of the property damages. Of the remainder, the city agreed to pay two-sixths and the county one-sixth of the property cost in Johnstown. For property damages beyond the city limits, the County and State agreed to share the costs equally.

The Federal flood control committee, December 1, 1937, informed the Pennsylvania Department of Forests and Waters (custodian of the flood control program) that funds would be available for the construction of dams on the Stonycreek River above Johnstown.

And so, beset with difficulties but still optimistic, the city goes forward, confident of its destiny. From the ruins of two major floods and the debris of innumerable minor ones, a bigger, better, and friendlier Johnstown has emerged; it stands today a monument to the courage of its living inhabitants and a memorial to the dead.



courtesy of Corps of Engineers, U S Army

THE SLOW RIVER

The Conemaugh at Dornick Point before channel improvement

THE CONEMAUGH CONTROLLED

Channel rectification at Dornick Point

Courtesy of Corps of Engineers U S Army



EPILOGUE

"THE FEDERAL GOVERNMENT, IF I HAVE ANYTHING TO DO WITH IT, WILL COOPERATE WITH YOUR STATE AND COMMUNITY TO PREVENT FURTHER FLOODS."

FRANKLIN D. ROOSEVELT
JOHNSTOWN, PA.
AUGUST 13, 1936

With these words the citizens of Johnstown were given a promise of liberation from a bondage of recurring disastrous floods that had ravaged the city for 128 years.

That promise given by President Roosevelt on the occasion of his visit to view the damage wrought by the March, 1936 flood, was redeemed on August 20, 1938, when construction was begun on the first unit of the \$7,600,000 flood control program under the direction of the Corps of Engineers, United States Army.

The Flood Control Act of June 22, 1936, and amendments made August 28, 1937, by Public Act No. 406, 75th Congress, authorized construction of the Johnstown project, while subsequent legislation provided that the entire cost would be borne by the Federal Government. Under the present plan, \$700,000 will be used for the purchase of land and relocations, and the remainder will be spent for channel improvements.

Because of its location in the Stony Creek-Conemaugh River basin, the flood control plan developed by the army engineers takes into consideration three factors which have been the direct causes of the floods. These are the proximity of the drainage area above the city to the prevailing path of storms; the precipitous topography of the basin; and the inadequacy of the existing channels.

The plan provides for 8.9 miles of channel improvement consisting of six units; 3 on the Conemaugh River; 2 on the Stonycreek and 1 on the Little Stonycreek. The project will include enlarging and re-aligning the present channels; concrete pavement protection of the banks, relocation of railroad track, highway and utilities and alterations to sewers and drains, bridge piers and other structures.

The new channels have been designed to accommodate substantially larger amounts of water than menaced the city at any of the flood periods. Based upon model studies, a flow of water comparable to that of March, 1936, would be held well within the banks of the new channels.

Construction of the first unit, located on the downstream end of the project on the Conemaugh River near Dornick Point, at the present time is approximately 80 per cent completed. Work on the second unit, scheduled to extend from the upstream end of the first unit and extend 7,000 feet up the river, will begin during May, 1939 and a supplementary unit will be started in April. The supplemental unit includes the relocation of a section of railroad tracks, highway and sanitary sewer, located on the right bank of the Conemaugh River upstream from Laurel Run.

Work on the remaining units will be inaugurated as quickly as feasible, and the completion of the project will eliminate any possibility of further flood damage.

Many public-spirited individuals and organizations have cooperated, first to obtain the flood control project and, secondly, to insure its completion at an early date. Mayor Daniel J. Shields was instrumental in interesting President Roosevelt and the Federal Government in the project. Members of City Council provided valuable assistance as did the then Governor of Pennsylvania, George H. Earle, and the members of the State Legislature.

To Major General Edward M. Markham, Chief of Engineers, United States Army, and officers of the Corps of Engineers, must be given the credit for the experimental work necessary in determining the proper measures of flood control and the responsibility for the utilization of those measures.

Of all these, and many others, may be said: They have labored faithfully that the citizens of Johnstown may turn their faces from a picture of horror and suffering and look into the future with confidence and security.

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